petition[37] (and as addressed in my January 23, 2002 Declaration in that proceeding[38]), special access prices are set so far in excess of costs that whatever "efficiencies" the BOCs might have introduced into the provision of special access services are in no event being flowed through to IXCs and other buyers of special access services.

Setting UNE prices based upon embedded or "reproduction" costs of the embedded network effectively restores rate of return regulation to the pricing of UNEs, and in so doing actually reverses whatever ILEC efficiency incentives might otherwise be ascribed to price cap regulation.

30. Actions by regulators to set UNE prices equal to embedded costs or to the theoretical costs of "reproducing" the embedded network, as advocated by several ILEC witnesses, would actually undermine the very price cap incentives these witnesses rely upon as proof of BOC efficiency. UNE prices are generally not subject to price caps. In order to set UNE rates on the basis of embedded costs, regulatory mechanisms would have to be devised (or resurrected from the days of rate of return regulation) so as to assure that the common and joint costs that dominate BOC networks are properly allocated to each specific UNE. Incredibly, while admonishing the Commission to proceed in this direction in the instant proceeding, *the very same RBOCs are telling an entirely opposite story to the United States Court of Appeals for the*

37. *In the Matter of AT&T Corp. Petition for Rulemaking to Reform Regulation of Incumbent Local Exchange Carrier Rates for Interstate Special Access Services*, RM No. 10593, Petition For Rulemaking, October 15, 2002.

38. *In the Matter of AT&T Corp. Petition for Rulemaking to Reform Regulation of Incumbent Local Exchange Carrier Rates for Interstate Special Access Services*, RM No. 10593, Reply Declaration of Lee L. Selwyn, January 23, 2002.

District of Columbia Circuit. In an effort to downplay the significance of the huge double-digit returns that the BOCs are realizing from their flexibly priced special access services – a condition that demonstrates that these services are being priced not *at*, but grossly *in excess of*, embedded cost, the RBOCs admonish the Court that:

> ... category-specific data from the FCC's Automated Reporting Management Information System ("ARMIS") ... contain arbitrary allocations that are "economically irrational." The FCC long ago concluded that the category-specific data reported in ARMIS "does not serve a ratemaking purpose." The FCC has referred to the cost-allocation rules as "outdated regulatory mechanisms that are out of step with today's rapidly-evolving telecommunications marketplace"and has indicated that reducing "regulatory reliance on earnings calculations based on accounting data is essential to the transition to a competitive marketplace." Indeed, the FCC has not imposed rate-of-return regulation for years, and the formal cost-allocation scheme has become obsolete.[39]

Just how "actual" can embedded costs be if the process for establishing them is "economically irrational" and "does not serve a ratemaking purpose?"

31. Moreover, setting UNE prices on the basis of embedded or "reproduction" costs would vitiate even those limited efficiency incentives that might be present under price cap regulation. If CLECs are able to attract ILEC customers via UNEs leased from ILECs at embedded cost prices, the result will be to remove successively larger fractions of the total ILEC service base from price caps as the ILECs' price cap-regulated retail services are migrated to *non-price cap-*

39. BOC Mandamus Response, at 13, footnotes omitted.

regulated UNEs. As such, an increasingly larger percentage of ILEC revenue would come from the provision of services (UNEs) that will not be subject to price caps. If UNE prices are to be set at embedded cost without any specific rate adjustment or rate review process, ILEC will acquire the same types of "gold plating" and inefficiency incentives that prevailed under RORR – with the added benefit that by assuring that these embedded cost-priced services are provided inefficiently, they will disadvantage rival carriers and in so doing retain and extent their monopoly hold on the retail local service market.

Econometric regression analyses submitted by several RBOC declarants confirm the existence of a strong statistically significant relationships between TELRIC UNE costs and ILEC "actual" costs, and demonstrate that TELRIC principles are being consistently applied by state commissions.

32. The Supreme Court's finding in *Verizon v. FCC* that TELRIC rates are not confiscatory[40] has led ILEC witnesses to look to creative, back-door devices for setting UNE rates at embedded costs. One such attempt can be found in the Declaration of Drs. Aron and Rogerson, submitted on behalf of SBC. There, Aron and Rogerson attempt to discredit TELRIC-based UNE prices by comparing "UNE-P prices to UNE-P costs" across states, hypothesizing that "there should be a systematic relationship between actual costs and forward-looking costs, and we would not expect it to vary wildly across states."[41] A similar claim is advanced by USTA declarants Eisenach and Mrozek, who compare state UNE prices with state-specific costs as

40. *Verizon Communication Inc. v. FCC*, 535 U.S. 467 (2002).

41. Aron/Rogerson (SBC), at 36.

developed by the FCC's Synthesis Model (also known as the Hybrid Cost Proxy Model, HPCM). Aron and Rogerson find that UNE prices vary substantially in ways that, they contend, "are unexplained by []cost proxies," and on that basis conclude that TELRIC methods are being incorrectly applied by state commissions and "that state commissions exercise their discretion in ways that are random with respect to costs."[42] As Aron and Rogerson see it, such "state commission discretion" undermines the validity of TELRIC.

33. The "costs" that Aron and Rogerson purport to compare with UNE-P prices are, of course, *not* the TELRIC costs that had been examined by the state PUCs and used as the basis for the adopted UNE prices. Instead, Aron and Rogerson posit three different "cost proxies," and "hypothesize that, if the UNE prices applied by state commissions are applied consistently across states and properly reflect the carriers' costs of providing UNEs [as reflected in the selected 'cost proxies'], then the OLS [ordinary least squares regression] model should 'fit' the data closely; that is, the model's adjusted R-squared value should be close to one."[43] This specification of the "hypothesis" to be tested is so extreme as to constitute nothing more than a "straw man" theory whose rejection is hardly surprising and is certainly of no import whatsoever. Indeed, if these three variables should explain perfectly UNE prices, then states shouldn't bother with cost modeling and instead should use Aron and Rogerson's three variable regression equation to set prices.

42. *Id.*

43. *Id.*, at 35.

34. An R-squared value of "close to one" would imply that the Aron-Rogerson model "explains" or "accounts for" *close to one hundred percent* of the variation in the dependent variable, the UNE-P price in this instance. It is entirely possible that there are identifiable and statistically significant relationships between the UNE-P price and each of the three "cost proxy" explanatory variables being tested by these declarants – i.e., Unit Embedded Cost as derived from ARMIS reports, unit costs as developed by the FCC's Synthesis Model, and average Line Density within the BOC's service area in each jurisdiction. However, there is no intuitive basis whatsoever to expect that these factors – separately or in combination – could possibly "explain" or "account for" anything even remotely close to 100% of the variation in the price of UNE-P.

35. The utter absurdity of the Aron-Rogerson "R-squared equals one" hypothesis can be graphically demonstrated by one of their models in particular – the single-variable model based upon Line Density – although the same point applies with equal force to all three. There is no question that Line Density is an important cost driver for subscriber outside plant loops. Longer average loop lengths and smaller cable sizes typical of low density areas are an important factor in making loop costs in low density areas higher than in more densely populated parts of the ILEC's service territory. However, Line Density is only one of many factors that influence loop cost. Others include terrain, local construction requirements (e.g., overhead or underground), labor rates, relative mix of feeder and distribution cable, use of fiber optics in distribution and feeder plant, and many others. *There is simply no intuitive basis to expect that Line Density by itself should account for fully or even nearly 100% of the variation in UNE-P prices from state to state.* In fact – yet referenced by Aron and Rogerson only in one perfunctory footnote – what the

Line Density model shows is a very strong and statistically significant relationship – at the 99.98% confidence level – between UNE-P price and Line Density.[44] Rather than concede that their model has actually proven precisely what they had set out to *disprove*, Aron and Rogerson simply ignore this result altogether.

36. The other two single-variable models – ARMIS/Historical costs, and Synthesis Model – produced the very same type of result. As with Line Density, there is every reason to expect *some* relationship between each of these variables and the price of UNE-P, but *there is no basis whatsoever to expect that these variables could, individually or in combination, explain 100% or anything close to 100% of the variation in UNE-P prices*. However, having posited their impossible-to-satisfy straw man hypothesis, Aron and Rogerson once again conclude that no such relationships are present. In actuality, both models identify a high degree of statistical significance to both variables. In the ARMIS/Historical Cost model, the coefficient is estimated at 0.558 with a Standard Error of 0.144, indicating a *t*-statistic of 3.88, i.e., the 99.999% confidence level. In their Synthesis Model regression, the coefficient of the explanatory variable was estimated at 0.565 with a Standard Error of 0.151, indicating a *t*-statistic of 3.74, i.e., the 99.999% confidence level. Of course, as with the Line Density model, these regressions prove *exactly the opposite* of what Aron and Rogerson had set out to show. Rather than concede that outcome, they simply ignore it.

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44. The Aron/Rogerson Line Density model estimates the Line Density coefficient at –3.733 with a Standard Error of 0.684, indicating a *t*-statistic of 5.46. At 48 degrees of freedom (the number of observations in the Aron/Rogerson data set), that corresponds to the 99.999% confidence level.

37. Economists use regression techniques to identify and quantify relationships among different variables. In performing such analyses, economists will posit (hypothesize) a relationship to be tested and, on the basis of the results obtained, either accept or reject the hypothesized relationship using standard and widely accepted statistical tests. The hypotheses to be tested using econometric regression models are ordinarily framed in terms of one or more specific explanatory variables (e.g., "the price of UNE-P (the dependent variable) is related to Line Density (the independent variable)"), not in terms of the extent to which the model "accounts for" variation in the *dependent* variable. As happened with all of the regressions presented by Aron and Rogerson, a strong and statistically significant relationship was identified between the dependent variable and each of the independent variables tested despite the fact that in each case the explanatory variable accounted for only a fraction of the variation in the price of UNE-P. Unless there is some intuitive basis to *expect* that the hypothesized relationship should account for 100% or nearly 100% of the variation in the dependent variable, there would be no reason to expect an R-squared close to one, nor would there be a basis to reject the model merely because the R-squared was not particularly close to one.

38. A recent paper by longtime BOC consultant Prof. Jerry A. Hausman of MIT described regression results with particularly low R-squared values – in the range of .01 to .05. In an effort to rationalize the validity of these regression models despite their low R-squared values, Hausman *et al* explain that:

> To test whether an individual coefficient is statistically significantly different from zero, one calculates the ratio of the estimated coefficient to its standard error,

> and then compares this ratio against a threshold value. For example, in large samples, an estimated coefficient is said to be significantly different from zero at a 5% significance level if the absolute value of the ratio equals or exceeds 1.96.[45]

Applying Hausman's prescription to the Aron-Rogerson models, the ratios of the estimated coefficients to their respective standard errors – the so-called *t*-statistic – actually confirm their statistical significance at the 99% level.

39. Aron and Rogerson state categorically that the results of their models reject their hypothesis.[46] However, by any generally accepted standard of econometric analysis (such as that applied by Hausman *et al.* in the above-referenced paper), the individual (and implicitly) hypothesized relationships between UNE-P prices and each of the three explanatory variables must be accepted as *highly statistically significant*. Put simply, the Aron and Rogerson model *affirmatively proves precisely the opposite of what these declarants were attempting to demonstrate*.

40. The R-Squared value in any model is a calculation of the percentage of the variation in the dependent variable that is explained by the variation in the independent variables. An R-squared value of one would indicate that the model takes into account *every possible source of variation in the dependent variable*. This is an *impossible* standard, and is one that is rarely if

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45. Hausman, Jerry A. Gregory K. Leonard and J. Gregory Sidak, "Does Bell Company Entry into Long Distance Benefit Consumers," 70 *Antitrust Law Journal* 463, 472, fn 32.

46. Aron/Rogerson, at 36.

ever achieved – or even expected – in practice. Even models containing dozens or hundreds of explanatory variables are not expected to – and do not – satisfy this hurdle. In the instant case, Aron and Rogerson have presented four models, three of which have only *one* explanatory variable, and the fourth of which has three. Moreover, the Aron-Rogerson model is a cross-sectional analysis in which all of the sample data is as of a specific, single point in time. It is generally acknowledged in the economics profession that cross-sectional models, by their nature, will generate lower R-squared values than time-series models.[47] Perhaps most importantly, it is essential to recognize that R-squared values are judged rather subjectively, and that *there is no general consensus about what an acceptable R-squared value should be.*[48] Aron and Rogerson have advanced a hypothesis *requiring* that R-squared should be close to one, despite the fact that their model specifications consist of only one or a handful of explanatory variables involving only cross-sectional data. Even so, regardless of the actual R-squared values and their relationship to any expectations, there is no econometric basis for dismissing a model as having no significance because of any particular R-squared value, and Aron-Rogerson's rejection of their "straw man" hypothesis on the basis of the purportedly low R-squared is both incorrect and, quite frankly, academically dishonest. As Cramer (1987) explained:

> In general, econometricians are interested in obtaining 'good' parameter estimates where 'good' is not defined in terms of R-Squared. Consequently the measure R-Squared is not of much importance in econometrics. Unfortunately, however,

47. Peter Kennedy, *A Guide to Econometrics*, 4/e, MIT Press, 1998 ("*Kennedy*"), at 26.

48. *Id.*

many practitioners act as though it is important, for reasons that are not entirely clear.[49]

41. Because their regression models produced *precisely the opposite of what they were attempting to prove*, Aron and Rogerson simply *ignored* the high degree of confidence that each of their three single-variable models established with respect to each of the three explanatory variables being tested, and instead focused entirely upon the essentially meaningless R-squared values. While the declarants do identify (with an asterisk) those coefficients that are statistically significant, they omit any mention or acknowledgment of this critically important result, and instead point out only that their "straw man" has indeed been knocked down.[50]

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49. J. S. Cramer (1987) *Mean and Variance of R2 in Small and Moderate Samples*. Journal of Econometrics 35, pp 253-66. See also, *Kennedy,* at 26-27 : "Because the R-Squared and OLS criteria are formally identical, objections to the latter apply to the former. The most frequently voiced of these is that searching for a good fit is likely to generate parameter estimates tailored to the particular sample at hand rather than to the underlying 'real world.' Further, a high R-Squared is not necessary for "good" estimates; R2 could be low because of a high variance of the disturbance terms, and our estimate of beta-hat could be "good" on other criteria..."

50. Even the perfunctory notation that the asterisk-identified coefficients are "significant at the 5% level" [Aron/Rogerson (SBC), Table 1, at 37] is highly misleading. Econometricians more commonly express statistical confidence in terms of the probability that the estimated value is statistically significant (e.g., at the 95% confidence limit). Instead, Aron and Rogerson have reported the inverse confidence level – the probability that the results are *not* statistically significant – using 5% in this instance. As I have noted, several coefficients are *even more significant* than the identified 95% confidence level. *All three of the single-variable model coefficients are significant at the 99.98% level* (assuming a two tailed, 48-df test). This extremely high level of significance cannot be so lightly dismissed, and confirms that each individual variable has an undeniably strong explanatory power, the low R-squared notwithstanding.

42. The results of the three variable model are also compelling. Again, the model results shows that two of the three variables are significant at the *95%* level and, in fact, the line density variable is significant at the 99% level. It is, however, particularly noteworthy that in the three-variable model the FCC's Synthesis Model variable is *not significant* when run in combination with the other two variables.[51]

43. Like Aron and Rogerson, Eisenach and Mrozek, on behalf of USTA, attempt to examine "the extent to which states have implemented the TELRIC rules in a consistent fashion"[52] by testing the relationship between statewide average UNE-P rates and unit costs as determined by the FCC's Synthesis Model (HCPM). And like Aron and Rogerson, Eisenach and Mrozek ignore the *extremely high* t-statistic values (reflecting confidence levels in excess of 99.99%) for

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51. Although it is not possible to know for certain, given the limited discussion and absence of regression statistics that are customarily included with regression model results, it seems likely that the three-variable model suffers from an econometric problem known as multicollinearity. Multicollinearity arises when some or all of the explanatory variables are correlated with each other. Checks for econometric issues such as multicollinearity or heteroskedasticity are customarily performed by regression software and are often reported along with the results of the model, although that was not the case here. Comparing the t-statistic for the FCC Synthesis Model variable in both models (which is calculated by dividing the estimated coefficient by the standard error), we see that the value drops from 3.742 (99.999% confidence level) in the single-variable model to 0.483 in the multiple-variable model, which indicates a lack of statistical significance. This dramatic shift in significance (in light of the relatively small changes to the ARMIS and Line Density variables) is consistent with multicollinearity.

52. "Do UNE Rates Reflect Underlying Costs?" filed as Attachment A to the Comments of USTA, December 16, 2003 ("*Eisenach and Mrozek (USTA)*"), at 3.

all eight of their regression models,[53] and instead focus upon the R-squared, noting that "only about one half of the variation in UNE rates can be explained by underlying costs."[54] Interestingly, whereas Aron and Rogerson compute an Adjusted R-squared of 0.218 for their Synthesis Model regression, the Eisenach-Mrozek models "show R-squared values of 0.53, 0.48, 0.52 and 0.52" for their UNE-loop regressions and "0.55, 0.44, 0.54 and 0.53" for their UNE-P models.[55]

44. Their conclusion that "about one half of UNE-P [and UNE-L] rate variation is due to factors other than cost" is hardly remarkable in light of the fact that their model regresses UNE prices against a cost benchmark (HCPM) that was, for the most part, *never actually used or intended to be used to set UNE rates*. Indeed, as the Commission noted in the instant NPRM:

> In developing the model and inputs necessary to calculate universal service funding, the Commission did not intend to provide any systematic guidance to states in the area of TELRIC rate-setting. Indeed, the Commission emphasized at the time that its decisions on particular inputs were made solely for the purpose of calculating universal service support and may not be appropriate for the calculation of UNE prices. For these reasons, we continue to discourage states from using the nationwide inputs for the purpose of developing UNE prices.
>
> In the absence of more specific guidance from the Commission, however, some state regulators have utilized our *USF Inputs Order* to reach conclusions regarding the TELRIC-based cost of building a network. Although we understand why state regulators might refer to the *USF Inputs Order* in developing forward-

53. *Id.*, at 24-27.

54. *Id.*, at 16.

55. *Id.*, at 16-17.

> looking costs, in at least some cases there might be unintended and undesirable consequences that result from extrapolating from statements made in the context of universal service funding. For example, the Commission stated in the *USF Inputs Order* that it is necessary "to assume that the telephone industry will have at least the same opportunity to share the cost of building plant that existed when the plant was first built." This statement was intended to address only the issue of structure sharing in the universal service model, but it has been interpreted by some states as endorsing a backward-looking approach for other inputs in a TELRIC model, such as the relative frequency of various construction types (e.g., boring through concrete, trenching through dirt). Applying this particular statement from the *USF Inputs Order* out of context erroneously assumes away not just the features of an incumbent LEC's existing network but also attributes of the real world in which incumbents and competitors operate.[56]

Given these facts, it would have been rather remarkable if the "fit" had been any better. Among other things, the declarants used *BOC* UNE rates as their dependent variables yet used *statewide average HCPM costs* (which included costs for non-Bell ILECs) as their explanatory variables. They also ignored the fact that the HCPM used *nationwide* expense factor dollar values, whereas the TELRIC studies that had been used by the individual state commissions properly used ILEC- and state-specific expense factors in setting jurisdictional UNE rates. Eisenach and Mrozek attempt to rationalize the use of the Synthesis Model as a cost benchmark because "the Synthesis Model is applied consistently across states" and so "the underlying cost estimates that emerge from the model are – unlike the TELRIC rates set by state PUCs – unaffected by regulatory discretion."[57] In essence, having "proven" that "costs" account for only about one half of the

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56. *Notice of Proposed Rulemaking*, FCC 03-224, rel. September 15, 2003, ("TELRIC NPRM"), at paras. 46-47 (footnotes omitted).

57. Eisenach and Mrozek (USTA)., at 6.

variation in UNE prices, Eisenach and Mrozek then proceed to ascribe all of the "unexplained" variation in UNE prices to "regulatory discretion."

45. "Regulatory discretion" would seem to be a particularly extreme pejorative characterization of what state regulators do in setting UNE prices – and is particularly undeserved inasmuch as Eisenach and Mrozek make no attempt whatsoever to examine other possible bases for the "deviations" from the HCPM results. The HCPM's use of nationwide expense factors and its development of industry-wide statewide average costs would certainly "explain" a good deal of the "deviations" – and these "deviations" are unambiguously attributable to limitations of the HCPM rather than to "regulatory discretion" on the part of state PUCs. In fact, the only situation in which the "deviation" between HCPM costs and UNE prices could be ascribed to "regulatory discretion" would be where the BOC, in proposing UNE rates, had relied upon HCPM results that were then modified or rejected by the state PUC. *To the best of my knowledge, no BOC has ever relied upon the HCPM as the basis for proposed UNE prices*, Indeed, the Commission has discouraged such reliance.

46. In short, all that Eisenach and Mrozek have done here is to confirm a strong relationship between HCPM costs and UNE prices at the 99.99+% confidence level, a result that is entirely consistent with their recognition that "the Synthesis Model is designed to estimate going-forward costs for individual UNE elements, and is thus *conceptually consistent with the TELRIC*

approach."[58] No one has ever suggested that the HCPM as adopted for universal service funding purposes is capable of developing ILEC- and jurisdiction-specific UNE prices, so "proving" that the HCPM does not do that is hardly a surprise, and certainly affords no insight whatsoever as to whether "state pricing decisions [are] inconsistent with the forward-looking cost principles on which [the FCC's] rules are based."

Contrary to how they are being portrayed, the econometric models introduced by the RBOC declarants affirmatively support the use of TELRIC as a basis for UNE pricing.

47. There is no particular reason for there to be a consistent relationship between UNE prices and so-called "actual" embedded cost or the "replacement cost" of the existing ILEC network. ILEC network configurations and architectures reflect legacy conditions that long pre-date the *1996 Act* or the requirement that ILECs make UNEs available to rival carriers. Large portions of ILEC networks were constructed decades ago, and as such network design and operational inefficiencies that arose under monopoly rate of return regulation are still embedded in ILEC network costs. And more recent, post-*Act* network construction has been heavily influenced by ILEC efforts to acquire the capability to enter new, unregulated markets, such as broadband, and to compete with or adopt new technologies, such as wireless and VoIP. Even if "efficient," these more recent capital investments may have little direct relationship with the unbundled network elements that ILECs are and will continue to be required to provide. There is thus no basis to expect that either historic embedded costs or reproduction costs of the ILEC

58. *Id.*, emphasis supplied.

network will accurately and fairly capture the forward-looking costs of UNE-loops and of UNE-P.

48. Embedded costs are heavily influenced by two factors whose specific effects tend to be opposite to one another. Where a state has experienced relatively high rates of plant additions, the purchase prices of such recently-acquired plant will be closer to the investment levels applicable to TELRIC analyses. However, for low-growth states with relatively older plant, depreciation reserves will tend to be relatively greater, making the net investment level that much smaller. The interaction of these two opposing conditions will obviously have a major impact upon the relationship between what Dr. Aron refers to as "actual" costs and UNE prices.

49. TELRIC pricing, in contrast, will not vary as a result of the mix of vintages of embedded ILEC plant. Aron/Rogerson's "discovery" of the lack of a "perfect fit" between "actual" costs and TELRIC-based UNE prices, far from being evidence of regulatory bias in ratemaking, is more likely a result of failing to account for uneven ILEC investment patterns.

50. Moreover, analyses based upon the ILECs' embedded costs are necessarily inflated by capital expenditures for plant additions unrelated to the provision of UNEs. ILECs have been engaging in network deployment related to expansion of broadband and other advanced facilities, including increased fiber deployment in feeder and distribution plant. ARMIS data indicates that

between 1997 and 2001, BOC in-region total plant in service increased an average of 26%,[59] an amount that far exceeds any plant retirement or additional volume-sensitive costs that the BOCs might confront on their legacy networks.

51. In addition, incumbent carriers have requested in many states that rates *not* be set exactly at TELRIC levels specific to a particular jurisdiction. For example, as the FCC notes, "Verizon's Massachusetts II Application relies on voluntarily-adopted rates that are equivalent to those currently in place in New York."[60] Following protracted litigation and dispute over a variety of costing issues, the California PUC in May of 2002 ordered the adoption of SBC's

59. Figure is the average increase in Total Plant in Service account balances, as reported in ARMIS Report 43-03, for all ILECs, from1997-2002

60. *In the Matter of Application of Verizon New England Inc., Bell Atlantic Communications, Inc. (d/b/a Verizon Long Distance), NYNEX Long Distance Company (d/b/a Verizon Enterprise Solutions) And Verizon Global Networks Inc., For Authorization to Provide In-Region, InterLATA Services in Massachusetts*, CC Docket No. 01-9, *Memorandum Opinion and Order*, FCC 01-130, 16 FCC Rcd 8988 (2001), 9000, at para. 21.

Illinois UNE rates as interim UNE rates for California.[61] Likewise, Delaware and Virginia adopted New York rates.[62]

52. As previously noted (at para. 14 *supra*), the RBOCs *concede* that "a significant portion of the [interstate costs of DSL services and interstate packet-switching services are being] assign[ed] to other elements." Virtually *all* of the investment in DSL and packet-switching has taken place *since the onset of price cap regulation*. Indeed, it is highly likely that the bulk of the 26% jump in RBOC gross plant in service that occurred during the 1997-2001 period was driven

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61. *Joint Application of AT&T Communications of California, Inc. and WorldCom, Inc. for the Commission to Reexamine the Recurring Costs and Prices of Unbundled Switching in Its First Annual Review of Unbundled Network Element Costs Pursuant to Ordering Paragraph 11 of D.99-11-050. Application of AT&T Communications of California, Inc. and WorldCom, Inc. for the Commission to Reexamine the Recurring Costs and Prices of Unbundled Loops in Its First Annual Review of Unbundled Network Element Costs Pursuant to Ordering Paragraph 11 of D.99-11-050. Application of The Telephone Connection Local Services, LLC for the Commission to Reexamine the Recurring Costs and Prices of the DS-3 Entrance Facility Without Equipment in Its First Annual Review of Unbundled Network Element Costs Pursuant to Ordering Paragraph 11 of D.99-11-050.* California Public Utilities Commission Decision 02-05-042, 2002 Cal. PUC LEXIS 286, May 16, 2002.

62. *In the Matter of Application by Verizon Virginia Inc., Verizon Long Distance Virginis, Inc., Verizon Enterprise Solutions Virginis Inc., Verizon Global Networks Inc., and Verizon Select Services of Virginia Inc., for authorization to Provide In-Region, InterLATA Services in Virginia*, WC Docket No. 02-214, *Memorandum Opinion and Order*, FCC 02-297, 17 FCC Rcd 21880, 21921-21922 (2002), at paras. 72-73 (some New York rates were adjusted for cost differences between New York and Virginia); *In the Matter of Application by Verizon New England Inc., Verizon Delaware Inc., Bell Atlantic Communications, In. (d/b/a. Verizon Long Distance), NYNEX Long Distance Company (d/b/a Verizon Enterprise Solutions), Verizon Global Networks Inc., and Verizon Select Services Inc., for Authorization To Provide In-Region, interLATA Services in New Hampshire and Delaware*, WC Docket No. 02-157, *Memorandum Opinion and Order*, FCC 02-262, 17 FCC Rcd 18660, 18664-18665 (2002), at para. 7.

by DSL, packet switching, broadband, and other advanced and potentially competitive services – a point not even mentioned by the various RBOC declarants. The presence of potentially substantial DSL, packet switching, broadband, and other advanced services costs in the "actual" or "reproduction cost" of the existing network is *by itself* a fully sufficient basis to discredit and disqualify the use of "actual cost" or "reproduction cost" as a basis for setting or evaluating UNE prices since, *by definition and by the FCCs TRO Order, none of these services are required to be provided as UNEs.* Although far from being the only source, the presence of DSL, packet switching, broadband and other advanced services costs in RBOC networks certainly accounts for a good deal of the lack of a "perfect fit" of the Aron-Rogerson and Eisenach-Mrozel regressions, yet this readily-conceded *fact* was never even considered, let alone discussed, in these declarants' statements.

If ILECs actually considered wireless and other intermodal alternatives to wireline services to be serious competitive threats, they would be *encouraging* CLECs to utilize ILEC networks rather than affirmatively seeking regulatory approval to exclude CLECs from accessing ILEC network elements.

53. Kahn/Tardiff claim that ILEC intermodal competition (notably that from wireless service providers) has forced ILECs to become more efficient, especially with respect to their network operations. Verizon's witnesses argue that this intermodal competition provides a sufficient check on ILEC pricing that market incentives exist both for ILECs to set economically

efficient retail and wholesale prices without regulatory intervention.[63] Likening the current telecommunications industry to the transportation industry, Kahn/Tardiff explain:

> For example, when AMTRAK determines the routes on which it offers service, the prices at which it will offer service, and numerous other decisions, it clearly must account for the fact that passengers can also travel by car or plane. Thus, the price at which it can offer service from Washington DC to New York is constrained by the prices for airline shuttle service between the two cities. Similarly, the price for wireline DSL services is constrained by the availability of cable modem service and the price for wireline telephone service is constrained by the rate for wireless service.[64]

On short-distance trips such as between Washington and New York, air and rail travel are economic substitutes and frequently offer passengers approximately the same door-to-door travel times. That said, it is worth noting that air fares between Washington and New York are still almost double the comparable Amtrak fare. In analogizing this transportation market to telecommunications, Kahn and Tardiff conveniently ignore the fact that wireless and wireline services are far more complementary to one another than they are substitutes for one another.

54. This possible migration of customers off the ILEC networks altogether, Kahn/Tardiff contend, provides ILECs with incentives to provide UNEs to competitors at "rational" costs to avoid losing all revenue associated with that customer. Kahn/Tardiff, however, seriously overestimate the effects of wireless and other forms of intermodal competition, which provides little or no real constraint on ILEC pricing or upon an ILECs UNE policy.

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63. Kahn/Tardiff (Verizon), at para. 13.

64. *Id.*, at para. 9.

55. In fact, ILECs continue to *raise* retail rates for wireline services (especially for customers not purchasing a "bundle" of local and long distance services), even in economic areas with significant wireless penetration. For example, Florida wireless penetration rates are significantly above the national average, yet recent legislation in Florida allows ILECs to raise local rates by up to 20% annually without approval of or review by the Florida Public Service Commission.[65]

56. ILEC rhetoric aside, the conduct of ILECs provides no reason for the Commission to believe that ILECs face incentives to provide wholesale services to competitors. Quite the contrary: If ILECs were truly concerned about losses to intermodal competition, they would be aggressively and affirmatively seeking out additional retail distribution channels for their traditional switched wireline services, certainly not attempt to shut them down. Indeed, in most industries, manufacturers expend enormous effort at developing and nurturing their retail distribution relationships. If serious and competitively consequential intermodal alternatives existed for ILEC wireline services, ILECs would want to *encourage* CLECs to use the ILEC networks and thus retain CLEC customers and generate revenue for their networks. ILECs would certainly not be engaged in seemingly endless regulatory litigation at both the federal and state levels characterizing UNE-P competition as "artificial" and attempting to eliminate competitor access to their networks altogether. This ILEC conduct is not consistent with the anecdotal evidence of the extremely limited substitution of intermodal alternatives to wireline

65. Fla. Stat. Sec. 364.051 (2003)

services to which Kahn and Tardiff refer, and certainly provide no basis to assume that such "competition" will either constrain UNE prices or work to assure UNE availability to CLECs.

ILECs are not required to, and do not, make specific investments in order to provide UNEs to CLECs, and as such incur no UNE-specific risks.

57. In the *TRO*, the Commission clarified "that a TELRIC-based cost of capital should reflect the risks of a competitive market."[66] However, and as I discussed at some length in my December 16, 2003 Declaration, the *TRO* also limited the ILECs' obligation to provide UNEs at TELRIC-based prices to solely those instances in which a CLEC's ability to compete would be "impaired" were the UNE not available. Such impairment arises when alternatives to the ILEC-provided UNE, including self-supply by the CLEC itself, are either not available at all or are uneconomic or impractical for the CLEC to obtain in any other manner. But in the *TRO*, the Commission also noted that:

> ... In the *Local Competition Order*, the Commission stated that different UNEs may have different costs of capital. We now clarify that the use of UNE-specific costs of capital is an acceptable method of reflecting in UNE prices any risk associated with new facilities that employ new technology and offer new services. A carrier in a TELRIC proceeding could, for example, attempt to demonstrate that the cost of capital associated with new services that might be provided over mixed copper/fiber loops is higher than the cost of capital used for voice services provided over other UNEs. We think this approach responds to the incumbent LECs' concern that our rules provide no opportunity for them to recover the cost

66. *TRO*, at para. 680.

of investing in facilities to provide services that are more advanced than those modeled under TELRIC.[67]

Different UNEs – and, for that matter, different types of investments – confront the ILECs with different types and levels of risk, in part because they also confront different levels of competition. This critically important point has been entirely ignored by the ILECs and their economists.

58. Investment in the types of "new services that might be provided over mixed copper/fiber loops" is likely more risky than investment in conventional, copper-based services; if so, such investments would potentially demand a higher, risk-adjusted cost of capital. On the other hand, the *TRO* does not require ILECs to make the facilities acquired for purposes of offering such "new services" available as UNEs to CLECs, so there is no justification for shifting those additional risks onto UNE-L, UNE-P and other "conventional" network elements. Indeed, and as I noted in my December 16, 2003 Declaration, doing so would amount to a cross-subsidization of those new services by CLECs and also by consumers of retail "POTS" services.

59. Indeed, ILECs are not even required to make investments in their networks specifically to provide UNEs.[68] And Verizon, for example, has specifically advised CLECs that it will not

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67. *Id.*, at para. 183, footnotes omitted.

68. *In the Matter of Implementation of the Local Competition Provisions of the Telecommunications Act of 1996*, CC Docket No. 96-98, *Third Report and Order and Fourth Further Notice of Proposed Rulemaking*, FCC 99-238, 15 FCC Rcd 3696, 3843 (1999). The FCC (continued...)

invest in additional facilities to provide a UNE if facilities are otherwise not available to meet a CLEC's request. On July 24, 2001, Verizon issued a notice to CLECs addressing this specific matter, a copy of which is included in Attachment 1 hereto. According to this notice,

> ... Verizon will provide unbundled DS1 and DS3 facilities (loops or IOFs) to requesting CLECs when existing facilities are currently available. Conversely, Verizon is not obligated to construct new Unbundled Network Elements where such network facilities have not already been deployed for Verizon's use in providing service to its wholesale and retail customers. ...

Significantly, when comparable facilities need to be constructed in order for Verizon to serve a retail end-user customer or to provide a special access facility, its policy with respect to constructing such new facilities is just the opposite. In a response to a Rhode Island PUC Staff data request PUC-CON-1-12 in RI PUC Docket 3363 (a copy of which is also included in Attachment 1), the Company stated that

> As a general matter, retail orders are not rejected due to a lack of facilities because Verizon generally will undertake to construct the facilities required to provide service at tariffed rates (including any applicable special construction rates) if the required work is consistent with Verizon's current design practices and construction. *Like its retail and carrier access customers, Verizon's CLEC customers may request Verizon to provide DS1 and DS3 services pursuant to the applicable state or federal tariffs.*

Emphasis supplied. In its response to the RI PUC Staff, Verizon provided the legal basis for its policy:

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68. (...continued)
affirmed this finding in the *TRO* at paras. 636 and 645.

> ... the 1996 Act only requires incumbent carriers to unbundle their existing network, not to construct network elements simply to make them available on an unbundled basis to competing carriers. As the Eighth Circuit explained, "subsection 251(c)(3) implicitly requires unbundled access only to an incumbent LEC's existing network – not to an as yet unbuilt superior one." *Iowa Util. Bd. v. FCC*, 120 F.3d 753, 818 (8th Cir. 1997), appealed on other grounds, AT&T Corp. v. Iowa Utils. Bd., 119 S. Ct. 721, 737 (1999).

Verizon reiterated this same position in an *ex parte* communication to the FCC in the *TRO* that was cited by the Commission.[69] A copy of that letter is provided as Attachment 2.

60. Contentions by the ILECs and by their various declarants that ILECs face *elevated risks* with respect to their "investments" in facilities used for the provision of UNEs are belied by Verizon's position on construction – and by the Commission's rulings at paras. 683, 636 and 248 of the *TRO*. Specifically, at para. 683, the Commission recognizes that there may be elevated risks associated with "new" services such as those involving fiber optic facilities vis-a-vis traditional voice services. At para. 248, the Commission expressly determines that ILECs will *not* be required to provide unbundled broadband facilities for the high-frequency portion of conventional facilities as UNEs to CLECs. And at para. 636, the Commission accepts Verizon's position that ILECs are *not* "required to trench or place new cables for a requesting carrier," reasoning that "[r]equests for altogether new transmission facilities, whether serving an existing customer or along a new route, demand far more planning, engineering, and technical resources than the routine modifications discussed above, and include rights-of-way issues, greater demands for on-site construction personnel, and substantial periods of actual construction." With

69. *TRO*, at fn. 1928 at para. 636.

respect to those *narrowband* facilities that ILECs *may* be required to provide as UNEs following the completion of the 51 state PUC "impairment" proceedings, there will be no consequential ILEC investment and no elevated risk.

The ILECs misinterpret and misapply the Commission's "risks of a facilities-based competitive market" cost of capital requirement to imply that the level of "investment risk" should be that which would confront an entirely hypothetical and fictitious "UNE-only" carrier.

61. In that regard, several of the ILECs and their declarants seem to interpret the para. 680 determination "that a TELRIC-based cost of capital should reflect the risks of a competitive market" as somehow implying that what the FCC meant was the risk confronting a *UNE-only carrier* operating under conditions of facilities-based competition. The notion of a "UNE-only carrier" makes no sense when considered in the overall context of the 1996 Act as well as with respect to the above-cited portions of the *TRO*.

62. In enacting Sections 251 and 252, Congress understood that *incumbent* LECs possessed unique resources that entrants could not be expected to replicate without expending considerable amounts of time and economic resources. The UNE requirement was imposed precisely because ILECs possessed legacy infrastructures that, by virtue of the ILECs' traditional status as regulated public utilities, were deployed ubiquitously throughout each ILEC's operating territory. When provided, UNEs utilize a small portion of those common resources, and benefit specifically from the scale and scope economies of the ILEC network. The "T" in TELRIC refers not to the total quantity of UNEs, but to the total quantity of network elements deployed

by the ILEC for its use in providing retail services as well as for providing UNEs. Indeed, several state commissions (including those in Pennsylvania, Florida and California) had considered the concept of creating a "UNE-only" carrier through structural separation of the incumbent LEC's network and retail operations. Under this concept, the ILEC's retail entity would have purchased UNEs from the network entity on exactly the same basis and under exactly the same terms and conditions as any other CLEC. In each such "structural separation" proceeding, the ILEC strenuously opposed any form of structural separation, arguing that, among other things, the physical separation of the network and retail functions would be extremely inefficient and costly. It is, to say the least, highly disingenuous for the ILECs to now posit the fiction of a UNE-only carrier as the construct to be utilized in evaluating the "risks" inherent in providing UNEs to CLECs.

There is no basis to conclude that the risks of CLEC "cancellation" of UNEs are any greater than the risks, already included in the ILEC's cost of capital, that an end user retail customer will discontinue the ILEC's service.

63. In that context, Verizon's Dr. Vander Weide proposes to attach a substantial (3.92%) "risk premium" to the ILECs' cost of capital to reflect the additional risks he seeks to ascribe to "cancelable leases" for UNEs. Vander Weide argues that "the option to cancel [i.e., to discontinue the use of a UNE] allows the CLECs to walk away from their use of the ILEC's network at no cost. ... The CLECs' option to cancel imposes *a severe cost on the ILECs*. If the CLECs build their own facilities, or use alternative facilities or technologies, the ILEC's revenue

will decline, while their investment and operating expenses remain the same."[70] In advancing this theory, Vander Weide is implicitly suggesting that the risk that a CLEC will "cancel a UNE" is materially greater than the risk that an end user ILEC customer will discontinue her retail service – a risk that is already factored into the ILEC's cost of capital. Dr. Vander Weide offers *no evidence whatsoever* that the potential for "cancellation" of a UNE by a CLEC is greater than the potential for cancellation of a retail service by an end user customer. Nor could he, since *if anything* precisely the opposite is likely the case. Moreover, whatever that potential "risk" may be, it must be analyzed separately as it would apply to loops vs. switching. Dr. Vander Weide has not done that either.

64. The Commission has made a finding of "national impairment" with respect to mass market DS-0 voice grade loops.[71] As well it should. The only alternative to an ILEC loop for mass market customers is the cable television provider, to the extent that it offers basic telephone service to a particular customer. Where cable telephony is available, the end user retail customer has a far greater likelihood of "cancelling" her ILEC service to migrate over to cable than would a CLEC that is providing mass market end user services via UNE-loops or UNE-P. Moreover, if that CLEC's customer switches to any wireline carrier – including the ILEC itself – *other than the cable company*, there will be *no cancellation* of the UNE-loop; it will simply be transferred

70. Declaration of James H. Vander Weide Submitted in Support of the Comments of the Verizon Telephone Companies, December 16, 2003 ("*Vander Weide (Verizon)*"), at 9. Emphasis supplied.

71. *TRO*, at para. 211.

to another CLEC or back to the ILEC. Either way, there is no net cancellation, and no risk of cancellation that is any greater – and possibly less – than for the ILEC's retail customers.

65. The Commission has made a finding of national impairment with respect to UNE switching, but it subjects this finding to a more "granular" analysis by state commissions.[72] The future of this UNE (and of UNE-P) is to be decided by each of the 51 state commissions in cases currently pending. While the ILECs may confront a "risk of cancellation" of UNE-switch services in the event that a CLEC elects to (or is forced to) utilize its own switch, the potential risk to the ILEC in such an event is minimal and, to a very large extent, is of the ILEC's own making. It is the ILECs, after all, who are aggressively pushing for "no impairment" findings with respect to UNE-switching and UNE-P. Where the ILECs are successful, CLECs will be forced to migrate customers off of ILEC switches and onto switches owned by those CLECs. The suggestion that this source of "additional risk" should be compensated by allowing the ILECs to incorporate a "risk-adjusted" cost of capital into the UNE prices is like the child who, after murdering his parents, seeks the mercy of the court because he is an orphan. That aside, there is in any event very little "risk" associated with the "cancellation" of switch UNEs. First, switch capacity can be and regularly is augmented in very small increments. In general, the "cancellation" of a switch UNE would free up capacity that could be shifted to other customers and other uses, thus allowing the ILEC to defer, for a time, the next scheduled switch capacity addition. Moreover, end office switching typically represents only about 18% of total ILEC

72. *Id.*, at para. 419.

plant in service.[73] Thus, even if ILECs were to lose, for example, as much as 10% of their end user customers to non-cable CLEC-owned switching *and* assuming for the sake of discussion that the ILECs had no other use – immediate or eventual – for the freed-up switch capacity, that would still "strand" *at the very most* only about 1.8% of total ILEC investment. And even this absolutely "worst case scenario" – which is highly unlikely in the extreme – could not possibly justify the 3.93% increment to the ILECs' cost of capital (based upon California figures) that Dr. Vander Weide characterizes as the "risk of cancelable leases."[74]

66. As the Commission may be aware, Verizon attempted to sell the Vander Weide cancelable-lease-risk-premium theory in a recently completed cost of capital proceeding before the New Hampshire Public Utilities Commission, NH PUC Docket No. DT-02-010. In its Order issued January 16, 2004, the New Hampshire Commission soundly rejected Verizon's and Dr. Vander Weide's story:

> Finally, no reasonable basis has been advanced in this case to apply a cancelable lease analogy to the UNE business, as opposed to the retail business. With the exception of individual long term contracts or special tariffs, none of Verizon's customers, wholesale or retail, are bound to remain with Verizon. Arguably, any premium that may apply to reflect the cancelable nature of the use of Verizon's facilities applies to retail service as well as wholesale service. However, as we note above, we have no basis on this record to differentiate the risk of retail and

73. ARMIS Report 43-03 for 2002 gives total BOC plant in service as $364.1-billion (row 2210) and BOC Central Office Switching (row 2001) at $65.2-billion, i.e., just under 18%.

74. Vander Weide (Verizon), Attachment C, at 3.

> UNE business. In any event, the risk of revenue loss from demand reductions is captured in the overall rate of return, properly set, as is all risk facing the firm.[75]

The full text of that portion of the New Hampshire Order dealing with the "cancelable lease risk premium" is provided herewith as Attachment 3.

67. The specific findings of the New Hampshire Commission, with which I concur, can be summarized as follows:

(1) Retail customers can also cancel ILEC service, and there was no showing that the likelihood of a CLEC cancelling a UNE is any greater than that for a retail customer cancelling retail service.

(2) Even if the UNE or retail service is cancelled, the ILEC can reuse the same facilities either to serve another customer at the same location, or another nearby customer. In the case of a UNE, if the cancellation is the result of the decision by the retail customer to return to the ILEC (or take service from a different CLEC), the facility will continue to be used. In fact, if the migration is from CLEC to ILEC, the ILEC's revenues could actually increase.

75. *Verizon New Hampshire Investigation into Cost of Capital, Order Establishing Cost of Capital*, New Hampshire Public Utilities Commission Docket No. DT 02-110, Order No. 24,265, January 16, 2004, slip. op. at 47.

(3) Such risks as may exist are already captured in the overall ILEC cost of capital, and no further premium is necessary.

(4) It was Verizon's own decision to offer UNEs only on a month-to-month basis; had Verizon also offered CLECs the option to take the UNE under a term contract, the risk of cancellation would have been effectively transferred to the CLEC.

(5) UNEs represent an extremely small part of the ILEC's overall business, so even if such a risk is present, its effect would be minimal. Verizon is not required to incur investment expenses specifically to provide UNEs to CLECs; whatever UNEs are being provided are furnished out of the same network that is being used to provide retail end user services.

For all of these reasons, the Commission should reject and dismiss the "calculable lease risk premium" theory and ascribe no additional risk to those specific UNEs that ILECs will continue to be required to provide to CLECs.

Any "carrier of last resort" risks that an ILEC might confront, to the extent not fully offset by its incumbency advantages and economies of scale and scope, are no different as between UNEs and end user retail services, and have in any event been incorporated into the financial market's evaluation of ILEC securities.

68. The RBOCs seek to ascribe to UNEs yet another additional source of risk – this one stemming from the ILECs' carrier-of-last-resort ("COLR") obligation – and argue that it should

be reflected as an additional "risk premium" on the cost of capital to be used in UNE TELRIC studies.[76] Dr. William Taylor for BellSouth argues that "the COLR obligation itself introduces the risk of unrecoverable network assets in the event that anticipated demand does not materialize."[77] As with the case of the "cancelable leases," there is no *a priori* basis to expect that such COLR "risks" as may exist are any different or disproportionately greater with respect to those specific narrowband UNEs that ILECs will continue to be required to provide – and for which they are under no obligation to invest – and end user services that ILECs provide. In any event, the ILECs have offered no quantification of these "additional COLR risks" that they allege to exist.

69. ILECs possess enormous incumbency and ubiquity advantages that likely more than offset any COLR-specific costs or risks that might be present. Legacy mass market customers are the ILECs to lose, whereas CLECs must expend substantial financial and other resources to convince those ILEC customers to take service from them. ILECs were able to acquire their legacy networks at minimal investor risk, and enjoy the often irreproducible economies of scale and scope when competing with the new entrants. ILECs have also been allowed to exploit their legacy customer base to sell long distance and other deregulated and nonregulated services, affording them an important head start advantage and enabling them to enter new markets at far lower per-customer acquisition cost – not to mention enormously lower risk – than that which confronts non-ILEC local and long distance carriers. While ILECs persist in whining about

76. Taylor/Banerjee/Ware (BellSouth), at 9-10, 27-28, 30; Weisman (Qwest), at 25-26.

77. *Id.*., at p. 42.

"regulatory disparities" like COLR and other requirements from which their nascent rivals are, for the moment, largely exempt, the enormity of their scale, scope, incumbency and head-start advantages easily overcomes these so-called "regulatory risks" to the extent that such "regulatory risks" are actually present in the first place.

70. If and to the extent there actually are any real COLR risks and costs that are unique to ILECs, these need to be addressed and resolved via explicit funding mechanisms, as in the case of universal service funding, and not through the kind of risk and cost shifting that the ILECs are here proposing. However, if ILECs are to be reimbursed for COLR and similar costs and risks, they should then also be required to make explicit offsets to the prices for their regulated basic monopoly services to compensate captive ratepayers for the numerous incumbency and affiliate benefits that they are allowed to uniquely confer upon their nonregulated lines of business with minimal or no compensation.

71. For all of the reasons discussed herein, there is no basis whatsoever to differentiate between the cost of capital applicable to those "impairment" UNEs that ILECs will continue to provide and the cost of capital that is appropriate for the ILEC entity as a whole.

Verification

The foregoing statements are true and correct to the best of my knowledge, information and belief.

Lee L. Selwyn